

## **CATEGORY 600 SHOULDERS**

### **SECTION 601 — EARTH SHOULDERS**

**601.01 DESCRIPTION.** This work shall consist of constructing shoulders using earth as specified in the Contract Documents.

**601.02 MATERIALS.** Refer to Section 204.

**601.03 CONSTRUCTION.** Refer to 204.03 and 208.03.

**601.04 MEASUREMENT AND PAYMENT.** Earth shoulders will not be measured but the cost will be incidental to the Contract unit price for the pertinent Excavation item.

### **SECTION 602 — CURB, COMBINATION CURB AND GUTTER, AND MONOLITHIC MEDIAN**

**602.01 DESCRIPTION.** This work shall consist of constructing concrete curb, concrete combination curb and gutter, concrete curb openings, concrete monolithic median, and hot mix asphalt (HMA) curb as specified in the Contract Documents or as directed by the Engineer.

#### **602.02 MATERIALS.**

Crusher Run Aggregate CR-6	901.01
Aggregate	901.01, Size No. 57
Curing Materials	902.07
Form Release Compound	902.08
Concrete Mix No. 2	902.10
Hot Mix Asphalt	904
Tack Coat	904.03
Reinforcement Steel	908.01
Joint Sealer	911.01
Preformed Joint Filler	911.02
Borrow Excavation	916.01

**602.03 CONSTRUCTION.****602.03.01 Concrete Curb, Combination Curb and Gutter, and Monolithic Median.**

- (a) **Excavation.** Excavation shall be to the specified depth and to a width that permits installation and bracing of the forms. The subgrade shall be compacted to 92 percent density in conformance with T 180, Method A, and trimmed to the proper shape and required grade. All soft and unsuitable material shall be removed and replaced with suitable material approved by the Engineer.
- (b) **Forms.**
  - (1) **Fixed Form Method.** Fixed forms shall be steel of an approved design, securely fastened and braced to prevent any movement during the placing of concrete. Forms shall extend to the full depth of the concrete and be a minimum of 10 ft long. When installation is made along curves where the radius of the curb face is less than 200 ft, flexible or curved steel or wooden forms a maximum of 6 ft long shall be used. Both wooden and steel forms shall be properly designed, acceptable to the Engineer, and installed to prevent buckling or warping. The tolerance shall not exceed 1/4 in. in 10 ft in either the grade or alignment. Forms shall be thoroughly cleaned and coated with a form release compound each time they are used.
  - (2) **Slip-Form Method.** Refer to 603.03.01(b).
- (c) **Concreting.** Concrete shall be mixed in conformance with 915.03.04. Volumetric batching and continuous mixing will be permitted. When the subgrade is dry, it shall be moistened with as much water as it can absorb. Consolidation of concrete placed in the forms shall be by spading or other methods approved by the Engineer. Except for curb face forms, the forms shall remain in place for a minimum of 12 hours and precautions taken to avoid damaging the concrete. Curb face forms shall be stripped as soon as the concrete will retain its shape.
- (d) **Depressed Curbs.** Curbs shall be depressed at entrances and sidewalk ramps as specified in the Contract Documents or as directed by the Engineer.

- (e) **Openings.** Drainage openings for the purpose of outletting rain spout water or other drainage shall be provided by constructing insert openings within the curb as directed by the Engineer.

Curb openings shall be provided as specified in the Contract Documents.

- (f) **Finishing.** Concrete shall be struck off to the cross section specified after which it shall be finished, floated smooth and followed with a broom type textured finish. The Engineer may permit other methods of finishing for the purpose of matching adjacent concrete finishes. Plastering is prohibited. All exposed edges shall be edged with a 1/4 in. edging tool except the face edge of curb shall have a 1 in. radius. When finished, the top surface of curbs and medians as well as the faces shall show no deviation from grade and alignment in excess of 1/4 in. per 10 ft. All honeycombed and damaged areas shall be repaired immediately after the removal of the forms in a manner acceptable to the Engineer.

- (g) **Joints.**

- (1) **Fixed Form Method.** Spacing between joints shall be 10 ft except where shorter spacing is necessary for closures and conformity to expansion and contraction joints in contiguous concrete pavements. No joint spacing shall be shorter than 4 ft. The joints shall be formed by using plate steel templates 1/8 to 3/16 in. thick and shall have a width and depth equal to the unit cross section. The templates shall be set perpendicular to the grade and line of the unit. Intermediate templates or sections of templates are prohibited. Where stationary structures such as bridges and inlets are encountered, an expansion joint shall be constructed for the full depth using 1/2 in. preformed expansion joint filler. Expansion joints shall be constructed at points of curves, tangents, at locations coinciding with adjoining pavement joints and as specified in the Contract Documents or as directed by the Engineer. Only the joints in the gutter portion of the combination curb and gutter and 1 in. up the face of all joints and expansion joints of monolithic medians shall be sealed. Expansion joints are not required when adjacent to a flexible pavement or away from any pavement.

- (2) **Slip-Form Method.** Joint construction shall be as specified in 604.03.01(b), except that joint spacing shall be as specified in 602.03.01(g)(1).

- (h) **Cold Weather Construction and Curing.** Refer to 520.03.02 for cold weather construction and to 520.03.12 for concrete curing.
- (i) **Backfill.** After the forms have been stripped and any necessary repairs are satisfactorily completed, the spaces in front and back of the curb, combination curb and gutter, and median shall be backfilled to the required elevations using material approved by the Engineer prior to any adjacent roadway rolling.

**602.03.02 HMA Curb.** HMA curb shall be placed by a self-propelled machine. The machine shall form curbing that is uniform in texture, shape, density and to a template as specified in the Contract Documents unless otherwise approved by the Engineer.

The base upon which the curb is to be placed shall be clean, dry and stable. It shall be tack coated with asphalt of the type and amount as directed by the Engineer.

When required, the curb shall be backfilled after it has sufficiently hardened to prevent damage. The backfill shall be consolidated by tamping or rolling.

**602.04 MEASUREMENT AND PAYMENT.** The payment will be full compensation for all concrete, hot mix asphalt, forms, excavation, backfill, disposal of excess material, drainage openings, joint sealer, tack coat, and for all material, labor, equipment, tools, and incidentals necessary to complete the work.

The removal and disposal of unsuitable material will be measured and paid for at the Contract unit price for Class 2 Excavation, which price shall include the cost of using suitable excavation as replacement material. When Borrow or Selected Backfill is authorized as replacement material, payment will be made at the Contract unit price bid for the respective items.

When existing curb or combination curb and gutter is removed and replaced with new curb or combination curb and gutter, the cost of the removal will be incidental to the Contract unit price for the new item.

**602.04.01** Curb, Combination Curb and Gutter and Monolithic Median will be measured and paid for at the Contract unit price per linear foot. Hot Mix Asphalt Curbs, Concrete Curbs, and Concrete Combination Curb and Gutter will be measured along the front face of the curb. Concrete Monolithic Median will be measured along the center line of the finished top of median.

**602.04.02** Concrete Curb or Concrete Combination Curb and Gutter Openings will be measured and paid for at the Contract unit price per each.

## SECTION 603 — SIDEWALKS

**603.01 DESCRIPTION.** This work shall consist of constructing hot mix asphalt (HMA) or concrete sidewalks and sidewalk ramps as specified in the Contract Documents or as directed by the Engineer.

### 603.02 MATERIALS.

Curing Materials	902.07
Form Release Compound	902.08
Concrete Mix No. 2	902.10
Hot Mix Asphalt (HMA)	904
Welded Wire Fabric	908.05
Joint Sealer	911.01
Preformed Joint Fillers	911.02

### 603.03 CONSTRUCTION.

#### 603.03.01 Concrete Sidewalks.

(a) **Excavation.** Refer to 602.03.01(a).

(b) **Forms.**

(1) **Fixed Form Method.** Fixed forms shall be of steel or wood and shall extend to the full depth of the concrete. All forms shall be straight, free from warp and of sufficient strength to resist the pressure of the concrete without displacement. Bracing and staking of forms shall be so that the forms remain in both horizontal and vertical alignment until their removal. The forms shall be thoroughly cleaned and coated with form release compound each time they are used. The concrete shall be set for a minimum of 12 hours before the forms are removed and every precaution shall be taken to avoid damaging the concrete.

(2) **Slip-Form Method.** Slip-form construction shall conform to the method specified in 604.03.01(b) except that joint construction shall conform to 603.03.01(e).

(c) **Concreting.** Before placing concrete the subgrade shall be moistened with as much water as it can absorb. The concrete